REMARKS

The following numbered sections of these remarks are provided in response to similarly numbered sections of the office action.

1. No comment required.

2. No comment required.

3-5. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication 2002/0061030A1 (INY) in view of U.S. Patent 5,799,014 (KOZAKI). Claims 1 and 6 are amended in response to this rejection.

Claims 1 and 6 (as amended) recite a method or apparatus involving converting incoming packets into cell sequences, which are concurrently stored in a memory and then forwarded from the memory. Each packet includes a FIN number with some values of the FIN number associated with a "cell-by-cell" forwarding mode and other values of the FIN number associated with a "sequence-by-sequence" forwarding mode. Each cell sequence is assigned the forwarding mode associated with its corresponding packet?s FIN value. Cells of sequences assigned to the cell-by-cell forwarding mode are alternately read out of the memory and forwarded with cells being interleaved with cells of differing packets. A cell sequence assigned to the sequence-by-sequence forward mode must be read out of the memory in uninterrupted succession without being interleaved with cells from any other sequence. The decision as to the forwarding mode for any cell sequence is thus based only on the FIN value conveyed by the packet corresponding to the cell sequence.

Cells from sequences arriving at input switch 502 from different sources are distributed to a set N of input FIFO buffers 504. Switch 502 can place cells from the same sequence in different input FIFOs 504 and can interleave cells of sequences from different cells in the same one of FIFOs 504.. A sorter 506, which pulls cells out of the FIFOs, sees only the longest stored cell in each of the N FIFOs 504. It has to decide which of the N cells it sees should be forwarded next, because it

can only forward one cell at a time to destination processor 508. INY (paragraphs 27 and 33) describes a scheme sorter 506 uses to determine which of the N cells at the outputs of the N FIFO buffers 504 to forward next. The scheme is based primarily on the time stamp included in each cell of a sequence, which indicates the time the first cell of that sequence was created. All cells of a given sequence contain the same time stamp. INY teaches that sorter 506 forwards the one cell of the N with the lowest time stamp. If two cells happen to have the same time stamp, the cell with the lowest time stamp and the lowest source ID is sent first. The source ID included in each cell indicates the source of the packet from which the cell was derived. If two or more of the N cells have the same lowest time stamp and the same source ID (i.e., they are part of the same sequence), then the cell with the lowest fragment number is forwarded first. The fragment number included in each cell of a sequence indicates the order in which the data payloads of the cells of that sequence should be positioned when reassembling the cells into a packet.

If we consider FIFO buffers 504 collectively as a "memory" holding cells of several cell sequences as recited in claims 1 and 6, then it is possible for a cell sequence to be sent out of that memory in the recited "sequence-by-sequence" mode insofar is its departing cells are not interleaved with other cell sequences. This can happen, for example if all of the cells of that sequence happen to have lower time stamps than cells of any of the other sequences, and the cells of that sequence don?t happen to be interleaved with cells of other sequences in any of the FIFO buffers. It is also possible for the cells of a cell sequence to be sent out in the recited cell-by-cell mode, for example when its cells happen to be interleaved with cells of another sequence in any of the FIFO buffers.

Thus when more than one cell sequence resides in the FIFO buffer, and cells of no two cell sequences have the same time stamp, the cells of the sequences with the oldest time stamp are

the first to depart, and they depart in the order of their fragment numbers. In such case all cell sequences depart the FIFO buffer in a non-interleaved, sequence-by-sequence mode.

When more than one cell sequence resides in the FIFO buffer, and all have the same time stamp, but all have differing source IDs, than the sequences depart in order of their source IDs, with each sequence being ordered according to fragment number. Thus in that case too, all cell sequences depart in a non-interleaved (sequence-by-sequence) fashion.

Finally, when more than one cell sequence resides in the FIFO buffer, all sequences have the same time stamp and the same source ID, the cells depart the FIFO in order of fragment number. In that case, all sequences would depart in an interleaved (cell-by-cell) fashion. However while this interleaved, cell-by-cell mode is the logical result of the scheme, such a situation cannot occur, since the same source cannot send two packets out at the same time and since INY's network switch cannot put the same time stamp on two packets form the same source, inasmuch as they would arrive at the same input port and one input port cannot receive more than one packet at a time.

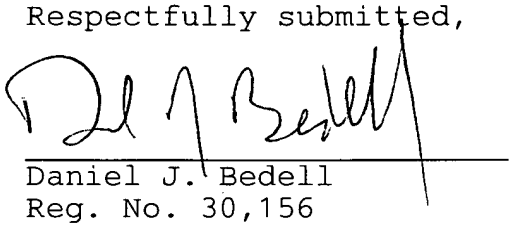
Thus in INY's system, the decision as to whether any particular sequence ends up being forwarded in a sequence-by-sequence mode or cell-by-cell mode is based on a comparison of the time stamps, source IDs and fragment numbers of all of the cells in the FIFO buffer. In the applicant's claims 1 and 6, the FIN number value conveyed in a packet alone determines the forwarding mode to which the cell sequence derived from that packet is assigned. This is advantageous in that it allows the system to be configured to always forward sequences from higher priority packets conveying particular FIN values in an uninterrupted, sequence-by-sequence mode. Claims 1 and 6, as amended, are therefore patentable over INY.

4. The Examiner has indicated that claims 2-5 and 7-12 (as amended to overcome the rejections under 35 U.S.C. 112, second paragraph) would be allowable if rewritten in independent form.

However in view of the forgoing remarks distinguishing their base claims 1 and 6 over the cited prior art, the Examiner is respectfully requested to allow claims 2-5 and 7-12 (as amended) to remain in dependant form.

In view of the foregoing amendments and remarks, it is believed the application is in condition for allowance. Notice of Allowance is therefore respectfully requested.

Respectfully submitted,



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